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ABSTRACT

In a survey of Oklahoma business designed to develop occupational data for the present and future, 300 occupations were selected and 11 schedules prepared to reflect various types of firms. The schedule concerning medical and other health services facilities was sent to nearly 200 firms and institutions and usable information was received from almost 80 percent. The information in this publication has been inflated and adjusted to agree with the published industry total. Data on 22 medical occupations and 27 other jobs found in medical facilities are presented along with information on total employment in the health area and an overall view of national trends. Medical employers predicted an 11.1 percent increase in employment by June 1969 over the same month of 1967. This considerably exceeded the 7.7 percent growth forecast for total wage and salary employment statewide. The medical gain by 1969 would provide 6,400 new jobs and raise the number of medical wage and salary workers to 63,800. By 1972, the 20.7 percent employment growth expected would raise the medical job count to 69,300 and provide 11,900 new positions. Extensive data are presented in tabular form.
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Manpower in Oklahoma

HEALTH

OCCUPATIONS

OKLAHOMA EMPLOYMENT SECURITY COMMISSION
OKLAHOMA STATE EMPLOYMENT SERVICE
RESEARCH AND PLANNING DIVISION
WILL ROGERS MEMORIAL OFFICE BUILDING
OKLAHOMA CITY, OKLAHOMA

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Manpower in Oklahoma:

HEALTH

OCCUPATIONS

JULY 1969

This study was prepared under the supervision of Robert E. Turner in the Labor Market Information Section, Research and Planning Division. Don DeSpain was responsible for this project, while Darling A. Jackson did the final typing. Statistical data were compiled and tabulated by the Benefit Records Section, C. L. Gandy, Supervisor. Credit is also due the Business Management Division, headed by Wayne Edge, for their work in varityping and printing.

OKLAHOMA EMPLOYMENT SECURITY COMMISSION
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SOUTHEAST REGION

EAST - CENTRAL REGION

SOUTH - CENTRAL REGION

SOUTHWEST - CENTRAL REGION

SOUTHWEST REGION

INDUSTRIAL AND

OCCUPATIONAL ANALYSIS

** The figure on page 5 in this publication, depicts geographic location and counties included in each of the eleven "Manpower" Regions.*

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PREFACE

The most important resource of an area is its people. Therefore, information and data concerning composition of that part of the population in the labor force is of vital importance. This study was conducted by the Oklahoma Employment Security Commission under a grant from the State Department of Vocational-Technical Education. The project was designed to determine current and future manpower needs by industry division, major occupational group and selected occupations.

The State Department of Vocational-Technical Education was particularly concerned with the compilation of such information for use in curriculum development for new area vocational schools as prescribed under the Vocational Education Act of 1963. Prospective employers, existing business establishments and educational institutions, as well as numerous agencies and other organizations, are also interested in the skills and overall characteristics of the labor force. This is especially true in Oklahoma, a state which has experienced accelerated growth in the past few years and where manifold opportunities for further development exist.

Through an effort to provide information to local leaders, data were compiled for the metropolitan areas of Oklahoma City and Tulsa, as well as nine other geographic regions. This detailed release, pertaining to health occupations, is the last of a series being prepared from the survey.

We are indebted to employers for their consideration and cooperation in supplying the necessary information. In addition, various private and governmental agencies and organizations, such as chambers of commerce, provided assistance. Finally, we wish to express our gratitude to Dr. Francis Tuttle, Director of the State Department of Vocational-Technical Education and to members of his staff for their assistance and suggestions throughout the course of the study.

INTRODUCTION

During the summer of 1967, the Oklahoma Employment Security Commission initiated a survey of Oklahoma businesses in an effort to develop current and future occupational data. More than 2,500 firms were included in the survey, of which about 70 percent provided usable information.

A list of nearly 300 occupations was selected to be surveyed and eleven different schedules were prepared for the various types of firms in the state. Each schedule contained only those occupations which would most likely be found in that type of firm. For example, the mining schedule contained jobs likely to be found in mining firms, while the construction schedule listed occupations found in that type of activity. Many jobs, such as accountant and secretary, were placed on most or all schedules, while some, such as medical assistant or carpenter, were only on one or a few of the lists.

One of the eleven schedules prepared was exclusively for medical and other health services facilities. This schedule was sent to nearly 200 firms and institutions across the state, with usable information received from almost 80 percent. The occupational information in this publication, which was compiled solely from those forms, has been inflated and adjusted to agree with the published industry total.

From the information provided by the surveyed firms, employment data on 22 medical occupations and 27 other jobs found in medical facilities have been compiled in this publication. Also, information on total employment in the medical and other health services division is presented, as well as an overall view of national trends.

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TRENDS IN MEDICAL AND OTHER HEALTH SERVICES

Over the past few decades, the needs for "health services" have been expanding at a tremendous rate. At one time, the maintenance of health mainly entailed direct curative measures. More recently however, the scope has broadened to include extensive preventative and rehabilitative activities as well as vast new fields of research and experimentation. Medical science has reportedly made greater progress in the last twenty years than in all its previous history. Similarly, the majority of drugs prescribed today were unknown ten years ago. As a result, the fear and dread of polio, smallpox, and tuberculosis have largely faded and the conquering of heart disease, cancer, birth defects and other disorders may soon be a reality. Furthermore, organ transplants and laser beam surgery are almost a daily occurrence.

Medicine today offers great hope in the alleviation of human suffering. Scientific and technological knowledge is providing the means for improving the health of every member of our society at a time when higher educational attainment has made people more than ever mindful of their health needs. In addition, society, has begun the removal of financial and other barriers which have denied so many persons adequate medical services and protection. Furthermore, hospitals and other facilities have been constructed with new equipment and techniques implemented. The critical need today is for medical manpower, not only larger numbers, but persons properly trained and properly located.

Demand for Medical Services

Increasing demand for medical care and the resulting growth in need for medical personnel is influenced by many factors. Some, such as population growth, are fairly apparent. Others, such as changing attitudes and habits, are more obscure.

One important element causing increased demand for medical services is population change. According to the U.S. Bureau of the Census, the United States population will increase by nearly 30 million between 1965 and 1975. Moreover, the age composition of the population is changing. The number of persons age 65 and over is increasing faster than the total population. This group, according to the National Health Survey, receives twice as much service from physicians as the total population and experiences over twice as many days of hospital care annually as the population in general.

Rising incomes and population shift are also factors in the growing demand for medical care. Less than 40 years ago, Americans saw a doctor an average of about two times a

year; by 1964, the average had increased to 4.5. Yearly admissions to general hospitals have moved upward from 56 per 1,000 persons in 1930 to 145 per 1,000 in 1964 and, based on total population, average days spent in the hospital from 0.9 to 1.3 per person per year. ^{1/} Part of the reason for this increased utilization of medical facilities came as a result of rising incomes. For example, between 1950 and 1965, total expenditures for health and medical care rose from \$12.9 to about \$40.0 billion, an increase of 210 percent. Per capita health expenditures have almost doubled, from \$111 in 1950 to \$209 in 1965. By 1975, these costs may increase to almost \$68 billion, or \$304 per capita. ^{2/}

Scientific and technological advances are also causing increased demand for medical services, thus medical personnel. Today, preventative and curative measures are being used on diseases that only a short time ago were considered incurable. New and better techniques are replacing older methods of treatment. As the chance of medical solution is extended to more and more disabled and diseased persons, the lack of trained medical personnel becomes more apparent and more critical.

In recent years, society has become increasingly concerned with the problems of the aged, poverty-stricken, and minorities in obtaining adequate medical care. The result of this concern has been the passage of Medicare and Medicaid amendments to the Social Security Act. At the time Medicare was signed into law, it had been estimated that additional medical care would be extended to 19 million older Americans. ^{3/} In the first full year of the program, some 4.4 million older Americans entered hospitals, for which the Social Security System paid over \$3 billion for their combined hospital and supplementary medical insurance benefits. ^{4/}

Medicaid provides benefits similar to Medicare to families having dependent children, the aged, blind, or the permanently disable whose income and resources cannot meet medical costs. These programs, along with other Acts such as the Federal Employee Health Benefits Act of 1959 and the Heart Disease, Cancer and Stroke Program of 1965 should continue to result in increasing demands on medical facilities and personnel.

Another factor in the increasing demand for medical services is the growing use of pre-paid health plans by Americans. The Health Insurance Council estimated that over 79 percent of all individuals were covered by partial or complete hospitalization insurance in 1964, up from 49 percent in 1950. Though many of the plans are purchased by individuals, med-

^{1/} *Health Manpower Perspective: 1967*, U.S. Department of Health, Education, and Welfare, Public Health Service Publication Number 1667, U.S. Government Printing Office, Washington, 1967, p.5.

^{2/} *Ibid.*

^{3/} "The Health Manpower Gap: A High Hurdle," *Occupational Outlook Quarterly*, Vol. No. 1, U.S. Dept. of Labor, Bureau of Labor Statistics, Feb. 1967, p.4.

^{4/} *Monthly Review*, Federal Reserve Bank of San Francisco, Jan. 1968, p.8.

ical health insurance coverage is becoming an important part of the overall wage packet offered by business and industry. If a person is covered by insurance, he will probably be more likely to seek medical care in more instances than if no insurance is available, thus increasing the demand for health services and personnel.

The Need for Medical Manpower

In 1966, an estimated 2.8 million Americans were engaged in health occupations. This figure was up some 90 percent over the 1950 total, while the population of the United States had increased 29 percent in that 16-year span.

Despite such notable growth in the number of medical workers, critical shortages in most health occupations continued to exist. The Public Health Service and the American Hospital Association (AHA) conducted a 1966 survey of staffing needs for all AHA registered hospitals. A like survey was conducted by the Public Health Service for nursing homes and other extended care facilities. Both surveys excluded physicians and other medical practitioners.

According to the surveys, hospitals needed to increase their staffs by an average of 19 percent to provide "optimum care"; nursing homes and extended care facilities required personnel increases of about 12 percent. More than three-fourths of all urgent needs were for nursing personnel – registered nurses, aides, orderlies, attendants, and practical nurses. Other occupations with significant needs included medical technologists, dietitians, occupational therapists and physical therapists. ^{5/}

An estimated 640,000 nurses were practicing in the United States in 1966, with about one-fourth of the total working only part-time. Moreover, it is estimated that an additional 135,000 nurses are currently needed. According to the Surgeon General's Consultant Group on Nursing, 850,000 nurses would be required in order to provide safe, therapeutically effective, and efficient care. Based on the same criteria, 1 million registered nurses would be required in 1975. Estimates of 1975 supply range from 800,000 to 900,000 trained personnel. ^{6/}

Although nurses are in critical demand across the country, this is by no means the only medical occupation for which there are currently large unmet needs. Studies in five fields – medical record library science, medical technology, occupational therapy, physical therapy

^{5/} Health Manpower 1966-75, Report No. 323, U.S. Department of Labor, Bureau of Labor Statistics, June 1967, p.8.

^{6/} Health Manpower Perspective: 1967, supra, p. 10.

and radiologic technology – indicate that, from the professional viewpoint, needs are almost double the present supply. ^{7/}

By 1975, the Bureau of Labor Statistics projects employment in health occupations to reach almost 4.0 million, an advance of more than 40 percent in ten years. This growth would require a net increase of between 100,000 and 130,000 health workers a year in the decade to 1975, a rate of increase 50 percent higher than that of the previous ten years. ^{8/}

It seems apparent that training for medical occupations will have to be increased during the years ahead. New educational centers and facilities may have to be constructed. Many female workers who have retired from the labor force should be recruited back to their former jobs. Another alleviatory measure would be a careful and complete examination of the duties and functions of all health workers to determine what can best be done by each worker. Today, many highly skilled health professionals spend too much of their time at tasks requiring much less education and skill than they possess, while, on the other hand, unskilled and poorly trained workers are often given tasks beyond their capabilities. ^{9/}

The Oklahoma Medical Scene

During June 1967, an estimated 57,400 Oklahoma nonfarm wage and salary workers were employed in medical and other health service facilities. This figure would exclude most physicians and other practitioners, as these persons are usually self-employed. The total does, however, include jobs necessary to the functioning of health services but not considered as health occupations. Examples are bookkeepers, secretaries, cooks and grounds keepers.

Oklahoma City and Tulsa, the state's two largest metropolitan areas, accounted for almost half of the medical total. The North-Central and Mid-Eastern Regions also had sizable numbers. In combining these four areas, nearly two-thirds of the state's medical wage jobholder total were counted.

The largest share of the state medical workers were in the service occupational group. Specifically, 49 percent of the total 57,400 were in this category. The service group includes such workers as nurses aides and orderlies, cooks, housekeepers, psychiatric aides, grounds keepers and others concerned with routine attendance to patients and general support of medical facilities.

^{7/} *Ibid*
^{8/} *Ibid*, p. 15
^{9/} *Ibid*, p. 2

KEY

- ① OKLAHOMA CITY STANDARD METROPOLITAN STATISTICAL AREA
- ② TULSA STANDARD METROPOLITAN STATISTICAL AREA
- ③ NORTHWEST REGION
- ④ NORTH-CENTRAL REGION
- ⑤ NORTHEAST REGION
- ⑥ MID-EASTERN REGION
- ⑦ SOUTHEAST REGION
- ⑧ EAST-CENTRAL REGION
- ⑨ WEST-CENTRAL REGION
- ⑩ SOUTHWEST REGION
- ⑪ SOUTH-CENTRAL REGION

MEDICAL AND OTHER HEALTH SERVICES EMPLOYMENT BY STATE REGION

STATE REGION	EMPLOYMENT			ABSOLUTE CHANGE		PERCENT CHANGE	
	June 1967	June 1969	June 1972	June 1967 to - June 1969	June 1967 to - June 1972	June 1967 to - June 1969	June 1967 to - June 1972
Statewide	57,400	63,800	69,300	6,400	11,900	11.1	20.7
Oklahoma City SMSA	16,710	17,690	19,830	980	3,120	5.9	18.7
Tulsa SMSA	11,020	13,330	14,470	2,310	3,450	21.0	31.3
Northwest Region	2,290	2,410	2,500	120	210	5.2	9.2
North-Central Region	4,720	5,180	5,590	460	870	9.7	18.4
Northeast Region	3,590	4,080	4,340	490	750	13.6	20.9
Mid-Eastern Region	4,410	4,890	5,200	480	790	10.9	17.9
Southeast Region	3,270	3,430	3,740	160	470	4.9	14.4
East-Central Region	2,210	2,380	2,500	170	290	7.7	13.1
South-Central Region	2,720	3,110	3,300	390	580	14.3	21.3
Southwest-Central Region	2,650	3,060	3,380	410	730	15.5	27.5
Southwest Region	2,240	2,460	2,520	220	280	9.8	12.5

Note: Regional figures do not add to totals due to rounding and regional exclusion of workers who could not be placed in specific areas.

The professional-technical-managerial category counted 18,699 medical workers during June 1967. Slightly over half of these were listed as nurses. There were also a sizable number of various types of technicians, technologists, and assistants counted by the survey.

The largest state medical occupation revealed by the survey was nurse aide or orderly, with an estimated 17,059 such workers during June 1967. The Oklahoma City and Tulsa SMSAs along with the North-Central Region accounted for over 40 percent of the statewide aide or orderly count.

In the nursing category, there were 4,151 general duty or office nurses, 3,398 licensed practical nurses, 1,610 head or supervisor nurses, and 242 personnel listed as directors of nursing service. In total, some 9,401 persons were engaged in a nursing profession in state medical and other health services facilities.

According to the 1969 Directory of Licensed Hospitals as published by the State Department of Health, there were 168 registered hospitals in Oklahoma as of March 1, 1969. Some 14 of these were tuberculosis, state-federal or federal hospitals. The 168 hospitals reported a total of more than 18,000 beds; however, four large state-federal facilities accounted for almost 30 percent of the state bed total.

The state's two largest metropolitan areas also provided a substantial share of Oklahoma's hospital bed total. Specifically, the Oklahoma City and Tulsa SMSAs reported more than 7,000 hospital beds, or nearly 40 percent of the state total. Included in this figure are a large state-federal institution and a federal hospital. The Oklahoma City count was more than two and one-half times greater than the Tulsa total.

Another important segment of the Oklahoma medical and other health services divi-

sion are the many rest and nursing homes. According to the State Department of Health, there were 382 licensed rest, nursing and specialized homes in Oklahoma during February 1969. These facilities provided nearly 23,000 beds, primarily for extended care and services for the aged. The Oklahoma City and Tulsa metropolitan areas accounted for nearly 30 percent of the state bed total.

During the last several years, there has been a significant change in the nursing and rest home segment. Between 1967 and 1969, the number of licensed homes decreased by more than 14 percent while the count of beds in the homes increased by over 18 percent. This advance resulted in more than 3,500 new beds in state nursing and rest homes. During the past few years, many small homes have closed while a number of large facilities have been opened. Additions to existing facilities have also been fairly numerous. These new homes are offering more services to patients therefore necessitating the hiring of medical personnel that were once rarely found in nursing and rest homes.

The State Medical Outlook

Surveyed Oklahoma medical employers predicted an 11.1 percent increase in employment by June 1969 over the like month of 1967. This considerably exceeded the 7.7 percent growth forecast for total wage and salary employment statewide. The medical gain by 1969 would provide 6,400 new jobs and raise the number of medical wage and salary workers to 63,800. By 1972, a 20.7 percent employment growth is expected, thus raising the medical job count to 69,300 and providing 11,900 new positions.

The largest increases in medical wage and salary employment are anticipated in the Tulsa SMSA. Specifically, gains of 21.0 and 31.3 percent would provide the three-county area with 2,310 new medical jobs by June 1969 and 3,450 additional such positions by June 1972. Other large additions are expected in the Oklahoma City SMSA, and the North-Central, Northeast, Mid-Eastern and Southwest-Central Regions.

Oklahoma's medical facilities should also experience growth in coming years. A number of new hospitals have been planned in various sectors of the state, as well as expansion of quite a few existing facilities. In Oklahoma City, for example, a medical complex "health campus" is planned for the near future. On this campus will be four major hospitals with more than 1,700 beds, two health departments, a private research foundation, and six major schools. Estimated cost of the structures is in the \$185 million range.

Although the last few years have seen many new nursing and rest homes completed, more are planned for various areas of the state in the near future. These new homes can be

expected to offer a wider variety of services and use more specialized personnel than in the past.

When viewing the list of surveyed state medical occupations, it is evident that employment growth in most should be quite rapid. Of the nearly 300 occupations surveyed in the "Manpower in Oklahoma" series, licensed practical nurse was forecast to have the fastest rate of employment growth for all occupations with 1,000 or more employed. General duty or office nurse ranked eighth in the same comparison. Other medical occupations, though many smaller in employment size, should experience similar growth. For example, the occupation of physical therapist is forecast to expand by nearly two-thirds from 1967 to 1972, while employment of ward clerks should increase by almost 50 percent.

The medical manpower problem is in the providing of trained personnel needed for replacement as well as expansion purposes. Hospitals and schools are training some persons in selected fields, but even these sources of supply fall far short of the anticipated need. Training for some medical occupations was not found in the state, with the expected consequences to be severe shortage in these jobs. Of the almost 300 jobs surveyed in the series, the occupations of nurse aide or orderly ranked fourth in the size of net additional needs by 1972. Specifically, more than 6,800 additional aides or orderlies should be needed by 1972 over the projected supply available. Most other medical occupations are expected to have similar shortages in relation to their employment levels.

The outlook for medical and other health services then is "growth" – growth in employment of medical workers, growth in the number and size of medical facilities, growth in the quality and quantity of services offered and, without increased training activity, growth in the shortage of trained medical personnel.

OCCUPATIONAL SUMMARY

OCCUPATION AND STATE REGION	EMPLOYMENT			JUNE 1969			JUNE 1972		
	June 1967	June 1969	June 1972	Total Require- ments	Total Supply	Net Additional Needs	Total Require- ments	Total Supply	Net Additional Needs
SUPERINTENDENT, HOSPITAL (ADMINISTRATOR)									
Statewide	239	245	249	24	2	22	52	2	50
Oklahoma City SMSA	29	29	29	2	0	2	5	0	5
Tulsa SMSA	16	16	18	1	0	1	4	0	4
Northwest Region	11	11	11	1	0	1	2	0	2
North-Central Region	30	30	32	3	0	3	8	0	8
Northeast Region	25	26	26	4	1	3	6	1	5
Mid-Eastern Region	29	29	29	2	0	2	6	0	6
Southeast Region	11	11	11	1	0	1	3	0	3
East-Central Region	19	19	19	1	0	1	4	0	4
South-Central Region	23	27	27	5	0	5	8	0	8
Southwest-Central Region	22	23	23	2	1	1	4	1	3
Southwest Region	24	24	24	1	0	1	4	0	4
DIRECTOR, NURSING SERVICE									
Statewide	242	251	257	38	0	38	87	0	87
Oklahoma City SMSA	52	55	58	9	0	9	22	0	22
Tulsa SMSA	29	29	32	4	0	4	12	0	12
Northwest Region	23	23	23	2	0	2	6	0	6
North-Central Region	24	24	24	3	0	3	7	0	7
Northeast Region	18	19	19	3	0	3	6	0	6
Mid-Eastern Region	15	15	15	2	0	2	5	0	5
Southeast Region	5	6	6	2	0	2	3	0	3
East-Central Region	6	6	6	1	0	1	2	0	2
South-Central Region	29	30	30	4	0	4	9	0	9
Southwest-Central Region	20	23	23	5	0	5	9	0	9
Southwest Region	21	21	21	3	0	3	6	0	6

SUPERINTENDENT, HOSPITAL (ADMINISTRATOR)

During June 1967, an estimated 239 hospital administrators were counted in Oklahoma's medical facilities. Slightly over 80 percent of the total were men. Employment increases in the occupation are expected to be moderate, with a 4.2 percent advance project by 1972. Jobholders for replacement positions will also be required and, as a result, net additional needs for administrators should number 22 and 50 in the two survey periods.

DIRECTOR, NURSING SERVICE

Persons employed as directors of nursing service at medical facilities across the state numbered 242 during June 1967. Growth in the occupation is expected to be nominal. Nevertheless, the need for more workers will be considerable, due largely to replacement requirements. Frequently, vacancies in this job are filled by persons from lower nursing levels, thus causing a greater shortage in other nursing occupations.

OCCUPATIONAL SUMMARY

OCCUPATION AND STATE REGION	EMPLOYMENT			JUNE 1969			JUNE 1972		
	June 1967	June 1969	June 1972	Total Require- ments	Total Supply	Net Additional Needs	Total Require- ments	Total Supply	Net Additional Needs
NURSE, HEAD OR SUPERVISOR									
Statewide	1,610	1,821	2,043	407	1	406	922	1	921
Oklahoma City SMSA	396	430	537	82	0	82	261	0	261
Tulsa SMSA	232	286	314	82	0	82	153	0	153
Northwest Region	46	53	56	13	0	13	24	0	24
North-Central Region	177	196	205	40	0	40	82	0	82
Northeast Region	111	129	135	31	0	31	58	0	58
Mid-Eastern Region	215	232	255	43	1	42	106	1	105
Southeast Region	128	146	164	34	0	34	75	0	75
East-Central Region	45	51	59	11	0	11	28	0	28
South-Central Region	106	135	153	42	0	42	79	0	79
Southwest-Central Region	105	110	112	17	0	17	38	0	38
Southwest Region	49	53	53	10	0	10	18	0	18
NURSE, GENERAL DUTY OR OFFICE									
Statewide	4,151	4,776	5,501	1,122	202	920	2,593	366	2,227
Oklahoma City SMSA	1,463	1,567	1,958	275	93	182	923	118	805
Tulsa SMSA	911	1,097	1,257	297	42	255	624	84	540
Northwest Region	161	164	169	23	2	21	57	6	51
North-Central Region	498	596	662	158	20	138	315	50	265
Northeast Region	111	211	229	114	13	101	152	31	121
Mid-Eastern Region	241	275	296	63	1	62	126	1	125
Southeast Region	155	184	198	48	1	47	90	1	89
East-Central Region	153	160	168	25	12	13	61	30	31
South-Central Region	137	171	185	51	10	41	90	25	65
Southwest-Central Region	150	167	184	35	8	27	79	20	59
Southwest Region	171	184	195	34	0	34	76	0	76

NURSE, HEAD OR SUPERVISOR

Some 1,610 medical personnel were listed as head or supervisor nurse at the time of the survey. Furthermore, forecasts call for such employment to grow by more than one-fourth by 1972. Therefore, net need for such nurses will be substantial in the two periods. Specifically, 407 additional head or supervisor nurses should be required by June 1969, with the figure increasing to more than 900 three years later. The supply of such workers will be limited primarily to promotion of personnel.

NURSE, GENERAL DUTY OR OFFICE

The number of general duty or office nurses is expected to increase nearly one-third by 1972 over the 4,151 reported in June 1967. The large need for workers caused by this expansion as well as replacement requirements should significantly exceed the anticipated supply of qualified personnel. Specifically, an estimated 2,227 additional general duty or office nurses should be needed by June 1972, or more than half the number employed at the survey date.

OCCUPATIONAL SUMMARY

OCCUPATION AND STATE REGION	EMPLOYMENT			JUNE 1969			JUNE 1972		
	June 1967	June 1969	June 1972	Total Require- ments	Total Supply	Net Additional Needs	Total Require- ments	Total Supply	Net Additional Needs
NURSE, LICENSED PRACTICAL									
Statewide	3,398	4,298	4,920	1,308	187	1,121	2,555	288	2,267
Oklahoma City SMSA	758	859	1,057	191	104	87	523	156	367
Tulsa SMSA	527	771	880	308	47	261	512	77	435
Northwest Region	97	121	152	35	0	35	84	0	84
North-Central Region	273	327	409	87	0	87	219	0	219
Northeast Region	333	443	477	150	4	146	245	4	241
Mid-Eastern Region	336	461	500	163	5	158	259	5	254
Southeast Region	224	250	278	53	2	51	122	2	120
East-Central Region	206	215	238	34	1	33	94	1	93
South-Central Region	183	297	324	136	23	113	196	42	154
Southwest-Central Region	238	300	343	91	1	90	178	1	177
Southwest Region	223	254	262	58	0	58	107	0	107
NURSE AIDE-ORDERLY									
Statewide	17,059	18,837	20,393	3,729	1,004	2,725	8,205	1,356	6,849
Oklahoma City SMSA	3,178	3,414	3,906	579	166	413	1,583	214	1,369
Tulsa SMSA	2,071	2,868	3,212	1,038	325	713	1,743	506	1,237
Northwest Region	646	695	726	125	36	89	270	59	211
North-Central Region	2,023	2,163	2,285	372	93	279	842	162	680
Northeast Region	1,405	1,382	1,388	136	58	78	380	58	322
Mid-Eastern Region	1,566	1,674	1,802	281	93	188	669	112	557
Southeast Region	1,526	1,561	1,707	219	48	171	640	48	592
East-Central Region	880	969	1,041	195	54	141	427	54	373
South-Central Region	1,273	1,372	1,457	245	64	181	549	76	473
Southwest-Central Region	1,139	1,273	1,341	271	53	218	544	53	491
Southwest Region	855	917	934	158	14	144	320	14	306

NURSE, LICENSED PRACTICAL

Nearly 3,400 licensed practical nurses were reported by the survey in June 1967, with a great majority listed as female. Nearly three-fourths of the total were located in private medical facilities. Licensed practical nurses are expected to be in strong demand in the years ahead. In spite of a rapid increase in employment in this occupation during recent years, the supply of qualified workers is apparently still insufficient to fill all job opportunities. While several area vocational-technical schools have begun L.P.N. training since the survey, the supply figures may be slightly understated. However, the need for more workers should still be quite pronounced in both forecast periods.

NURSE AIDE - ORDERLY

The occupation of nurse-aide or orderly was the largest surveyed state medical job with an estimated 17,059 workers during June 1967. Slightly over 87 percent of the total were listed as women. Job opportunities for aides or orderlies should be excellent during the near future, as worker needs are expected to far outpace supply. Employment growth should stem from population expansion, the increasing ability of persons to pay for health care, and because of Medicare, Medicaid and other federal legislation. Unmet worker requirements for aides or orderlies are forecast to number 2,725 by June 1969 and expand to 6,849 five years from the study date.

OCCUPATIONAL SUMMARY

OCCUPATION AND STATE REGION	EMPLOYMENT			JUNE 1969			JUNE 1972		
	June 1967	June 1969	June 1972	Total Require- ments	Total Supply	Net Additional Needs	Total Require- ments	Total Supply	Net Additional Needs
PSYCHIATRIC AIDE									
Statewide	559	701	858	197	76	121	436	141	295
Oklahoma City SMSA	209	216	229	26	0	26	67	0	67
Tulsa SMSA	17	37	57	22	10	12	45	10	35
Northwest Region	110	110	110	11	10	1	28	25	3
Northeast Region	147	238	357	105	40	65	245	90	155
Mid-Eastern Region	60	80	80	27	16	11	38	16	22
MEDICAL TECHNOLOGIST, CHIEF									
Statewide	159	165	174	21	0	21	51	0	51
Oklahoma City SMSA	39	42	47	7	0	7	18	0	18
Tulsa SMSA	18	18	18	2	0	2	3	0	3
Northwest Region	8	8	8	1	0	1	2	0	2
North-Central Region	14	14	14	1	0	1	2	0	2
Northeast Region	17	18	18	3	0	3	6	0	6
Mid-Eastern Region	11	11	11	1	0	1	2	0	2
Southeast Region	6	6	6	0	0	0	1	0	1
East-Central Region	6	6	7	0	0	0	2	0	2
South-Central Region	15	16	19	2	0	2	6	0	6
Southwest-Central Region	10	11	11	1	0	1	3	0	3
Southwest Region	10	10	10	1	0	1	2	0	2

PSYCHIATRIC AIDE

More than 80 percent of the 559 psychiatric aides counted statewide for the survey date were located in the Oklahoma City SMSA, the Northeast and the Northwest Regions. Such employment is expected to increase by more than one-fourth by June 1969, and by more than one-half three years later. Largest growth is anticipated in the Northeast Region. Although some trained psychiatric aides should be existent, demand should outpace those available by 121 and 295 in the two forecast periods, respectively.

MEDICAL TECHNOLOGIST, CHIEF

Some 159 chief medical technologists were reported at work in state medical facilities during June 1967. Half of the total were males. Employment growth should be moderate, resulting in a need for 21 and 51 additional chief technologists in the two forecast years. These replacements will no doubt come from promoting regular medical technologists, causing an even greater shortage in that occupation.

OCCUPATIONAL SUMMARY

OCCUPATION AND STATE REGION	EMPLOYMENT			JUNE 1969			JUNE 1972		
	June 1967	June 1969	June 1972	Total Require- ments	Total Supply	Net Additional Needs	Total Require- ments	Total Supply	Net Additional Needs
MEDICAL OR BIOCHEMISTRY TECHNOLOGIST									
Statewide	631	731	826	165	44	121	356	95	261
Oklahoma City SMSA	268	287	310	49	14	35	115	28	87
Tulsa SMSA	142	178	208	51	19	32	104	33	71
Northwest Region	21	21	24	2	1	1	8	3	5
North-Central Region	45	58	69	17	3	14	34	13	21
Northeast Region	20	30	36	12	2	10	22	5	17
Mid-Eastern Region	17	22	28	7	2	5	15	5	10
Southeast Region	18	21	28	5	1	4	14	3	11
East-Central Region	19	21	21	4	0	4	6	0	6
South-Central Region	26	31	32	7	2	5	11	5	6
Southwest-Central Region	20	22	27	3	0	3	11	0	11
Southwest Region	16	18	19	3	0	3	6	0	6
RADIOLOGIC TECHNOLOGIST									
Statewide	306	361	435	83	16	67	198	20	178
Oklahoma City SMSA	95	108	128	21	1	20	54	1	53
Tulsa SMSA	62	83	109	28	13	15	63	16	47
Northwest Region	9	9	9	1	0	1	3	0	3
North-Central Region	23	25	32	4	1	3	13	2	11
Northeast Region	18	19	19	2	0	2	5	0	5
Mid-Eastern Region	24	27	31	5	0	5	12	0	12
Southeast Region	9	10	16	1	0	1	9	0	9
East-Central Region	7	7	7	0	0	0	1	0	1
South-Central Region	17	22	23	6	1	5	10	1	9
Southwest-Central Region	20	23	30	5	0	5	14	0	14
Southwest Region	13	17	18	5	0	5	8	0	8

MEDICAL TECHNOLOGIST OR BIOCHEMISTRY TECHNOLOGIST

During June 1967, nearly two-thirds of 631 medical or biochemistry technologists reported employed were located in the Oklahoma City or Tulsa SMSAs. Some 433 of the technologists were women. Substantial employment growth is expected, with an increase of more than 30 percent anticipated by June 1972. By 1969, a need for 121 more technologists is forecast, while by 1972, the figure should more than double to reach a 261 demand level.

RADIOLOGIC TECHNOLOGIST

Slightly more than half of the 306 radiologic technologists in the state in June 1967 were men. Employment growth in this, as in most surveyed medical occupations, should be quite pronounced during the forecast years. By 1972, a worker increase of over 40 percent is expected, with much of the advance anticipated in private hospitals across the state. Unmet worker requirements for radiologic technologists should number 67 by June 1969 and enlarge to 178 three years later.

OCCUPATIONAL SUMMARY

OCCUPATION AND STATE REGION	EMPLOYMENT			JUNE 1969			JUNE 1972		
	June 1967	June 1969	June 1972	Total Require- ments	Total Supply	Net Additional Needs	Total Require- ments	Total Supply	Net Additional Needs
ELECTRO-CARDIOGRAPH / -ENCEPHALO- GRAPH TECHNICIAN									
Statewide	138	165	183	41	4	37	81	5	76
Oklahoma City SMSA	37	37	41	4	0	4	13	0	13
Tulsa SMSA	44	61	68	21	3	18	36	4	32
Northeast Region	9	11	11	3	0	3	5	0	5
Mid-Eastern Region	11	14	16	4	0	4	7	0	7
Southeast Region	6	6	9	0	0	0	4	0	4
South-Central Region	13	15	15	4	0	4	6	0	6
Southwest-Central Region	5	7	8	3	1	2	5	1	4
SURGICAL TECHNICIAN									
Statewide	475	524	610	101	12	89	266	19	247
Oklahoma City SMSA	163	178	219	32	0	32	100	0	100
Tulsa SMSA	115	121	137	19	6	13	53	12	41
Northwest Region	25	25	27	3	0	3	10	0	10
North-Central Region	27	35	46	11	0	11	27	0	27
Northeast Region	15	21	23	8	2	6	13	2	11
Mid-Eastern Region	36	39	43	7	2	5	17	2	15
Southeast Region	9	9	9	1	0	1	2	0	2
South-Central Region	18	22	22	5	1	4	8	1	7
Southwest-Central Region	26	28	33	5	1	4	15	2	13
Southwest Region	24	26	28	5	0	5	11	0	11

ELECTRO-CARDIOGRAPH/-ENCEPHALOGRAPH TECHNICIAN

During June 1967, some 138 EEG or EKG technicians were employed in the state. About 70 percent of the total were women. By 1972, the number of such workers is expected to increase by almost one-third and present job opportunities to an additional 76 persons. Little supply for such jobs was noted in the state at the time of the survey.

SURGICAL TECHNICIAN

Nearly 60 percent of the total 475 surgical technicians counted during June 1967 were located in the state's two metropolitan areas. The outlook for the occupation is good, with employment forecast to increase by more than one-fourth by 1972. Needs for additional workers should number 89 by June 1969 and 247 five years from the date of the survey.

OCCUPATIONAL SUMMARY

OCCUPATION AND STATE REGION	EMPLOYMENT			JUNE 1969			JUNE 1972		
	June 1967	June 1969	June 1972	Total Require- ments	Total Supply	Net Additional Needs	Total Require- ments	Total Supply	Net Additional Needs
MEDICAL LABORATORY ASSISTANT									
Statewide	374	450	545	114	15	99	268	18	250
Oklahoma City SMSA	101	109	140	17	4	13	62	4	58
Tulsa SMSA	101	123	153	32	6	26	79	9	70
Northwest Region	7	12	14	6	0	6	9	0	9
North-Central Region	25	27	34	4	0	4	16	0	16
Northeast Region	17	25	30	10	3	7	17	3	14
Mid-Eastern Region	28	42	45	17	1	16	24	1	23
Southeast Region	15	16	21	2	0	2	9	0	9
East-Central Region	10	10	11	1	0	1	4	0	4
South-Central Region	21	25	28	6	0	6	13	0	13
Southwest-Central Region	21	25	30	7	1	6	15	1	14
Southwest Region	19	23	23	6	0	6	10	0	10
MEDICAL ASSISTANT									
Statewide	303	333	357	66	9	57	144	9	135
Oklahoma City SMSA	114	120	130	19	3	16	49	3	46
Tulsa SMSA	72	88	96	25	4	21	46	4	42
Northwest Region	17	17	17	2	0	2	5	0	5
Mid-Eastern Region	5	5	5	1	0	1	2	0	2
East-Central Region	24	24	24	2	0	2	6	0	6
South-Central Region	29	29	29	4	0	4	9	0	9
Southwest-Central Region	18	25	31	9	2	7	18	2	16
Southwest Region	13	13	13	2	0	2	4	0	4

MEDICAL LABORATORY ASSISTANT

An estimated 374 medical laboratory assistants were employed in state health facilities during June 1967. A majority were located in private institutions. Such employment is forecast to increase by almost 50 percent by 1972, creating a notable need for additional workers. Specifically, forecasts call for unmet worker requirements of 99 by June 1972 and 250 five years from the study date.

MEDICAL ASSISTANT

According to surveyed employers, there were 303 medical assistants in medical and other health services during June 1967. Although employment growth in this occupation is not expected to be as large as in some medical jobs, needs for workers should still be significant. Specifically, unmet worker requirements for medical assistants should number 57 by June 1969 and increase to 135 three years later.

OCCUPATIONAL SUMMARY

OCCUPATION AND STATE REGION	EMPLOYMENT			JUNE 1969			JUNE 1972		
	June 1967	June 1969	June 1972	Total Require- ments	Total Supply	Net Additional Needs	Total Require- ments	Total Supply	Net Additional Needs
PHYSICAL THERAPIST									
Statewide	141	200	234	72	6	66	127	14	113
Oklahoma City SMSA	34	40	50	9	3	6	24	9	15
Tulsa SMSA	37	60	64	26	0	26	36	0	36
North-Central Region	11	14	17	4	2	2	9	4	5
Northeast Region	10	11	18	2	0	2	10	0	10
East-Central Region	6	6	6	0	0	0	1	0	1
South-Central Region	9	14	14	5	1	4	7	1	6
Southwest-Central Region	13	21	24	10	0	10	15	0	15
Southwest Region	9	15	17	7	0	7	11	0	11
OCCUPATIONAL THERAPIST									
Statewide	39	63	78	28	0	28	48	0	48
Oklahoma City SMSA	27	30	33	6	0	6	13	0	13
Tulsa SMSA	7	20	25	13	0	13	20	0	20

PHYSICAL THERAPIST

During June 1967, an estimated 141 physical therapists were employed in state medical facilities. Such employment can be expected to increase by two-thirds by 1972. The demand for physical therapists relates to greater public recognition of the importance of rehabilitation. Also, the expected growth in the number of nursing homes should result in need for additional physical therapists. By June 1969, opportunities for 66 more qualified personnel should exist, with the figure expanding to 113 three years later.

OCCUPATIONAL THERAPIST

According to this study, only two areas of the state employed five or more occupational therapists during June 1967. More specifically, the Oklahoma City and Tulsa metropolitan areas accounted for 34 of the 39 therapists statewide, according to employer reports. By 1972, the number of workers is forecast to double, with 15 of the new positions coming outside of the two metropolitan areas. At that time, unfilled job opportunities are expected to number 48 statewide.

OCCUPATIONAL SUMMARY

OCCUPATION AND STATE REGION	EMPLOYMENT			JUNE 1969			JUNE 1972		
	June 1967	June 1969	June 1972	Total Require- ments	Total Supply	Net Additional Needs	Total Require- ments	Total Supply	Net Additional Needs
<i>OCCUPATIONAL THERAPY AIDE</i>									
Statewide	121	139	161	32	7	25	73	7	66
Oklahoma City SMSA	40	43	48	8	5	3	18	5	13
Tulsa SMSA	14	18	18	5	0	5	7	0	7
Northwest Region	8	8	8	1	0	1	2	0	2
North-Central Region	35	36	38	5	0	5	14	0	14
Northeast Region	7	13	24	7	0	7	19	0	19
Mid-Eastern Region	5	5	7	0	2	-	3	2	1
Southwest Region	5	7	7	3	0	3	4	0	4
<i>MEDICAL-RECORD LIBRARIAN</i>									
Statewide	185	220	240	56	3	53	107	4	103
Oklahoma City SMSA	44	49	56	10	0	10	25	0	25
Tulsa SMSA	20	25	27	7	0	7	12	0	12
Northwest Region	9	11	14	3	0	3	8	0	8
North-Central Region	22	24	25	5	1	4	10	1	9
Northeast Region	12	14	14	3	0	3	6	0	6
Mid-Eastern Region	7	15	15	9	0	9	10	0	10
Southeast Region	12	13	14	2	0	2	6	0	6
East-Central Region	9	12	13	4	0	4	7	0	7
South-Central Region	13	17	17	6	2	4	8	3	5
Southwest-Central Region	16	18	23	4	0	4	12	0	12
Southwest Region	15	15	15	2	0	2	5	0	5

OCCUPATIONAL THERAPY AIDE

Of the 121 occupational therapy aides reported statewide in June 1967 more than 60 percent were located in the Oklahoma City SMSA or the North-Central Region. With employment expected to increase by approximately one-third by 1972, such job opportunities should be quite good. Forecasts predict needs for an additional 25 occupational therapy aides by June 1969 and 66 more workers needed five years from the date of the study.

MEDICAL RECORD LIBRARIAN

According to the 1967 survey, some 185 medical record librarians were working in state medical and other health facilities. Employment opportunities for the occupation should be good during the next few years. The increasing number and size of hospitals and the volume and complexity of hospital records should contribute to a growing demand for medical record librarians.

OCCUPATIONAL SUMMARY

OCCUPATION AND STATE REGION	EMPLOYMENT			JUNE 1969			JUNE 1972		
	June 1967	June 1969	June 1972	Total Require- ments	Total Supply	Net Additional Needs	Total Require- ments	Total Supply	Net Additional Needs
MEDICAL RECORD CLERK									
Statewide	538	600	661	127	3	124	286	3	283
Oklahoma City SMSA	194	202	218	31	2	29	33	2	31
Tulsa SMSA	137	158	166	38	0	38	71	0	71
Northwest Region	9	11	14	3	0	3	8	0	8
North-Central Region	30	37	42	11	0	11	21	0	21
Northeast Region	38	49	55	16	0	16	29	0	29
Mid-Eastern Region	17	19	22	4	0	4	9	0	9
Southeast Region	19	21	26	4	0	4	13	0	13
East-Central Region	10	10	11	1	0	1	4	0	4
South-Central Region	21	24	24	6	0	6	9	0	9
Southwest-Central Region	36	38	48	6	1	5	22	1	21
Southwest Region	11	14	16	4	0	4	8	0	8
WARD CLERK									
Statewide	673	851	994	259	14	245	524	14	510
Oklahoma City SMSA	293	312	360	55	4	51	155	4	151
Tulsa SMSA	178	265	307	109	6	103	183	6	177
North-Central Region	54	70	88	22	0	22	50	0	50
Northeast Region	34	42	45	12	0	12	21	0	21
Mid-Eastern Region	36	57	63	25	0	25	38	0	38
Southeast Region	17	26	37	11	1	10	25	1	24
South-Central Region	11	15	15	5	2	3	7	2	5
Southwest-Central Region	20	27	33	9	1	8	19	1	18
Southwest Region	7	9	11	3	0	3	6	0	6

MEDICAL RECORD CLERK

Proportionate growth in employment of medical record clerks should roughly follow increases expected in the occupation of medical record librarian. Specifically, clerk job advances of 11.5 and 22.9 percent over the 538 reported during June 1967 are forecast in the two periods. Job opportunities would then exist for 124 additional medical record clerks by June 1969, while by 1972, an added 283 should be needed.

WARD CLERK

Nearly all of the 673 ward clerks reported in June 1967 were women and more than three-fourths were at work in private medical facilities. Employment growth in the occupation is forecast to be quite pronounced, with an increase of almost 50 percent expected by 1972. Net additional demand for such workers should reach 245 by June 1969 before advancing to 510 some three years later.

OCCUPATIONAL SUMMARY

OCCUPATION AND STATE REGION	EMPLOYMENT			JUNE 1969			JUNE 1972		
	June 1967	June 1969	June 1972	Total Require- ments	Total Supply	Net Additional Needs	Total Require- ments	Total Supply	Net Additional Needs
DIETITIAN									
Statewide	295	336	359	77	1	76	153	1	152
Oklahoma City SMSA	78	81	91	13	0	13	37	0	37
Tulsa SMSA	45	58	61	18	0	18	30	0	30
Northwest Region	18	18	18	2	0	2	5	0	5
North-Central Region	34	36	40	6	0	6	16	0	16
Northeast Region	10	12	12	3	0	3	5	0	5
Mid-Eastern Region	25	34	37	12	0	12	20	0	20
Southeast Region	6	6	6	1	0	1	2	0	2
East-Central Region	16	16	16	2	0	2	5	0	5
South-Central Region	21	24	26	5	1	4	11	1	10
Southwest-Central Region	19	19	19	2	0	2	6	0	6
Southwest Region	17	25	25	10	0	10	11	0	11
FOOD SERVICE SUPERVISOR									
Statewide	301	309	323	43	5	38	109	5	104
Oklahoma City SMSA	78	80	89	11	3	8	33	3	30
Tulsa SMSA	51	51	51	6	0	6	15	0	15
Northwest Region	22	22	22	2	0	2	6	0	6
North-Central Region	33	35	40	6	0	6	16	0	16
Northeast Region	19	20	20	3	0	3	7	0	7
Mid-Eastern Region	11	11	11	1	0	1	3	0	3
Southeast Region	26	26	26	3	0	3	8	0	8
East-Central Region	8	8	8	1	0	1	2	0	2
South-Central Region	15	18	18	4	2	2	6	2	4
Southwest-Central Region	16	16	16	2	0	2	5	0	5
Southwest Region	13	13	13	1	0	1	4	0	4

DIETITIAN

According to surveyed medical employers, employment of dietitians is predicted to increase by more than 20 percent between 1967 and 1972. Moreover, 76 and 152 additional dietitians should be needed for expansion and replacement purposes in the two survey periods. Some of the factors expected to contribute to the increasing opportunities are expansion of hospital and nursing home facilities, greater use of medical services by an increasing population and the growth of various health programs.

FOOD SERVICE SUPERVISOR

During June 1967, an estimated 301 food service supervisors were employed in medical and health facilities across the state. Approximately nine out of ten of the supervisors were reported as female. Growth in the occupation should be steady, but not as pronounced as for many other medical occupations. Net additional need for the supervisors is expected to total 38 and 104 by June 1969 and 1972 respectively.

Note: Regional totals may not add to the statewide figures due to regional sampling variations and statewide inflation factors. Also, regions with less than five workers were excluded in order to avoid revealing staffing of individual firms.

JOB DESCRIPTIONS OF MEDICAL OCCUPATIONS

SUPERINTENDENT, HOSPITAL (ADMINISTRATOR) - An executive who administers and coordinates activities of professional and other hospital staff members. Directs the total operation of the facility through department heads and the medical staff. Interprets and executes policies of the governing board, by developing methods and procedures designed to achieve maximum efficiency in providing patient care. Promotes team action of physicians, nurses, dietitians, pharmacists, technicians, housekeepers, engineers, and others. Represents the hospital to the community through a program of public relations.

DIRECTOR, NURSING SERVICE - Administers program of nursing service in a hospital or other patient care facility. Maintains standards of patient care as prescribed by medical staff and administrative policy (including licensure requirements). Coordinates all patient care services through direct supervision of department heads.

NURSE, HEAD OR SUPERVISOR - Supervises and coordinates activities of nursing staff of a specific nursing service; or directs activities of an organized hospital unit. Sometimes termed Head Nurse with responsibility for a floor, wing or other physical area of the facility; or may be called Nurse, Supervisor, serving as director of a department such as obstetrics, surgery or pediatrics.

NURSE, GENERAL DUTY OR OFFICE - A nurse who provides general nursing care and treatment in a hospital, infirmary, sanitarium, clinic, physician's office or public health department. Gives medications, injections and other treatments as prescribed by physician. May work in various hospital departments; frequently assists in surgery as scrub or circulating nurse. Reports condition of patient to physician and / or supervisor and records vital information and data on patient's chart or clinical record.

NURSE, LICENSED PRACTICAL - A person who cares for ill, injured, convalescent, and handicapped persons in hospitals, clinics or other patient care facilities. Works under supervision of a professional nurse, and provides general nursing care as prescribed by a physician. May administer medications and assist in surgery and obstetrical cases.

NURSE AIDE - ORDERLY - A non-licensed worker who assists in care of patients in a hospital or nursing home. Works under direction of nursing and medical staffs in performing routine and simple tasks of patient care, such as bathing, serving food, and moving patients within the hospital. Includes practical nurses without a licenses.

PSYCHIATRIC AIDE - An attendant who works under direction of nursing and medical staff in a mental hospital. Assists patients in accomplishing such personal functions as bathing, dressing, and feeding. Gives special care to those patients requiring more than routine attention and may administer medications prescribed by a physician. Assists in promoting patients' participation in social and recreational activities.

MEDICAL TECHNOLOGIST, CHIEF - A person who assigns work and coordinates activities of technicians and others in a laboratory of a hospital, medical clinic or public health agency. Performs various medical laboratory analyses to aid in diagnosis and treatment of disease. Prepares tissues for microscopic study and performs tests to assist pathologist. Supervises and instructs subordinates in performance of test.

MEDICAL OR BIOCHEMISTRY TECHNOLOGIST - Performs chemical, microscopic and bacteriological tests in a medical laboratory of a patient care institution or health agency. May specialize in particular field, such as biochemical analysis. May assist during autopsies or engage in medical research with emphasis on control and cure of disease.

RADIOLOGIC TECHNOLOGIST - A technician who operates X-ray equipment, and applies roentgen rays and / or radioactive substances to patients for diagnostic and therapeutic purposes. Places patient in position to obtain desired view, and / or exposure or particular body area. Develops film and may assist physician with fluoroscopy or radioactive therapy.

ELECTRO-CARDIOGRAPH / --ENCEPHALOGRAPH TECHNICIAN - A technician who operates and / or monitors special equipment used in hospitals and medical clinics to diagnose illnesses and certain disorders of the heart or brain. Attaches electrodes to specified parts of patient's body and activates equipment to produce graphic readings. Tracings of readings are prepared for medical specialists' examination and interpretation.

SURGICAL TECHNICIAN - A person who assists a surgeon, and other members of a surgical team, before and during an operation. Prepares patient for surgery. Follows standard procedures for maintaining sterile condition of self and apparel. Places equipment and supplies in operating room and arranges instruments as instructed. May assist in administering blood, plasma or other injections.

MEDICAL-LABORATORY ASSISTANT - A technician who performs routine tests in medical laboratories, for use in diagnosis and treatment of disease. Works under general supervision of a medical technologist or pathologist, but makes some independent analyses, such as urinalyses and blood counts. Cleans and sterilizes glassware and laboratory equipment. May care for test animals used in medical laboratory.

MEDICAL ASSISTANT - A person who assists a physician in performing examinations and treatment of patients in a medical clinic, office, out-patient department of a hospital, or public health service. Prepares patient for type of service or treatment ordered by physician. May administer injections and assist physician in minor surgery. Prepares medical records as required and maintains essential stock of supplies.

PHYSICAL THERAPIST - A person who assists a physician in treatment of patients with fractures, sprains, muscular or nervous disorders, and other disabilities. Uses physical exercise, mechanical apparatus; heat, light, water, electrical stimulation, and massage to relieve pain, restore function, and maintain normal performance of body activity.

OCCUPATIONAL THERAPIST - A person who engages in a medically oriented occupational program in a hospital or similar institution. Works, in general, under physician's instructions, but also independently initiates and directs educational, vocational, and recreational activities designed to rehabilitate physically or mentally ill persons.

OCCUPATIONAL THERAPY AIDE - An assistant who instructs patients in various arts, crafts and related activities designed to rehabilitate them through occupational therapy. May assist occupational therapist in fitting special orthopedic devices. Works under general direction of occupational therapist and reports on progress of patient's treatment.

MEDICAL-RECORD LIBRARIAN - A person who compiles and maintains medical records of hospital and clinic patients. Assembles medical information from patients' charts, case histories, and other related sources. Organizes information to determine completeness and maintains individual file on each hospital or clinic patient. Classifies and codes medical records according to standard nomenclature and procedures. Serves as custodian of medical records and releases information from such only as authorized by law and / or administrative policy. Compiles and reports data on admissions, births, deaths, discharges and related statistics.

MEDICAL-RECORD CLERK - A clerk who assists a medical-record librarian. Classifies medical records of hospital or clinic patients. Keeps daily statistical record of admissions, discharges, deaths, births and kinds of medical services given. Compiles statistics for reports and surveys.

WARD CLERK - A clerk who prepares and compiles records in a particular hospital nursing unit. Records personal and medical information about each patient and maintains a file of medical records on patients in unit. Prepares discharge notices to inform business office. May record hours worked and related information on personnel in unit.

DIETITIAN - A person who plans and directs food service programs in hospitals or public institutions. Plans and formulates menus to meet dietary needs of persons served. Consults medical, nursing and social service staffs in patient care institutions to determine patients' food habits and needs. May supervise a staff of workers engaged in food preparation.

FOOD SERVICE SUPERVISOR - A person who supervises employees engaged in preparing and serving food in a hospital or nursing home. Instructs individual workers in methods of performance, and coordinates work of department to promote efficiency of operation. Usually follows menus planned by dietitian (full-time or consultant) but utilizes acquired knowledge of patients' dietary needs and food preparation to exercise independent judgment. Purchases or requisitions foodstuffs, maintains records and prepares reports related to dietary service.

MEDICAL-RELATED OCCUPATIONS

Many workers in medical and other health services facilities are not directly responsible for the medical care received by patients. Their duties often fall in the general operation of the institution such as upkeep of facilities or in providing the support services necessary to major activities. Furthermore, these occupations are also found in facilities other than medical institutions, such as manufacturing plants, banks, trade firms and others.

A list of 27 such medical-related occupations was extracted from the "Manpower in Oklahoma - Industrial and Occupational Analysis". Although these jobs appeared in other industry divisions, employment is shown here only for the medical and other health services component. Similar figures are presented for the Oklahoma City and Tulsa SMSAs, the only two areas of the state where occupational employment was broken out by industry division.

The biggest share of the medical-related occupations reported was in the clerical category. Specifically, 15 of the 27 jobs were listed as clerical occupations. The professional-technical-managerial ranks counted six of the jobs, while three were in the service occupational group.

The largest of the medical-related but non-health occupations at the survey date was cook, with more than 2,500 employed. Other larger jobs, employment-wise, included housekeeper, general office clerk, secretary and building maintenance man.

Employment growth should be significant for most of the non-health occupations in state medical facilities. Two of the jobs are forecast to more than double in employment between 1967 and 1972, while several more are expected to increase by more than 50 percent. Slowest gains in the number of workers is projected to occur for grounds keepers, where an 8.5 percent growth is anticipated in the five-year forecast span.

Net additional needs were not calculated for occupations by industry divisions, but by the total employment of all industries. However, requirements for workers in these 27 occupations will exceed the amount of employment expansion anticipated. Replacements for persons who will leave the labor force for reasons such as death, disability, or to assume the role of housewife or mother must be considered. It would also be difficult to allocate total supply for an occupation to the various industry divisions. Therefore, only levels of employment are shown for the medical-related occupations during the forecast years. For complete information on these jobs in all industries, Tables 4, 5 and 6 of the "Industrial and Occupational Analysis" publication should be consulted.

**EMPLOYMENT IN MEDICAL – RELATED OCCUPATIONS
JUNE 1967 AND FORECAST PERIODS**

OCCUPATION	EMPLOYMENT			PERCENT CHANGE	
	June 1967	June 1969	June 1972	June 1967 to - June 1969	June 1972
Programmer, Business					
Statewide	24	34	50	41.7	108.3
Oklahoma City SMSA	13	16	25	23.1	92.3
Tulsa SMSA	10	12	13	20.0	30.0
Chemist					
Statewide	15	16	18	6.7	20.0
Oklahoma City SMSA	12	14	14	16.7	16.7
Accountant					
Statewide	187	210	224	12.3	19.8
Oklahoma City SMSA	30	37	44	23.3	46.7
Tulsa SMSA	26	26	26	0.0	0.0
Purchasing Agent					
Statewide	85	95	99	11.8	16.5
Oklahoma City SMSA	28	31	34	10.7	21.4
Tulsa SMSA	<u>1</u>	10	10	xx	xx
Manager, Credit & Collection					
Statewide	114	119	131	4.4	14.9
Oklahoma City SMSA	25	27	28	8.0	12.0
Tulsa SMSA	10	12	12	20.0	20.0
Social Worker or Case Worker					
Statewide	47	51	57	8.5	21.3
Oklahoma City SMSA	40	43	49	7.5	22.5
Secretary					
Statewide	955	1,065	1,188	11.5	24.4
Oklahoma City SMSA	454	529	615	16.5	35.5
Tulsa SMSA	163	177	191	8.6	17.2
Stenographer					
Statewide	628	655	730	4.3	16.2
Oklahoma City SMSA	419	431	459	2.9	9.5
Tulsa SMSA	64	67	80	4.7	25.0
Personnel Clerk					
Statewide	66	82	101	24.2	53.0
Oklahoma City SMSA	16	23	29	43.7	81.2
Tulsa SMSA	11	14	18	27.3	63.6
Clerk - Typist					
Statewide	611	712	763	16.5	24.9

EMPLOYMENT IN MEDICAL – RELATED OCCUPATIONS
JUNE 1967 AND FORECAST PERIODS
(Continued)

OCCUPATION	EMPLOYMENT			PERCENT CHANGE	
	June 1967	June 1969	June 1972	June 1967 to - June 1969 June 1972	
Oklahoma City SMSA	138	149	167	8.0	21.0
Tulsa SMSA	112	158	168	41.1	50.0
Bookkeeper (Hand)					
Statewide	430	457	467	6.3	8.6
Oklahoma City SMSA	78	79	86	1.3	10.3
Tulsa SMSA	128	150	150	17.2	17.2
Cashier					
Statewide	177	196	216	10.7	22.0
Oklahoma City SMSA	55	59	63	7.3	14.5
Tulsa SMSA	41	51	58	24.4	41.5
Digital-Computer Operator					
Statewide	10	13	18	30.0	80.0
Oklahoma City SMSA	<u>1/</u>	<u>1/</u>	10	xx	xx
Key-Punch Operator					
Statewide	52	72	87	38.5	67.3
Oklahoma City SMSA	42	47	55	11.9	31.0
Data Typist					
Statewide	19	22	27	15.8	42.1
Oklahoma City SMSA	16	17	20	6.2	25.0
Bookkeeping Machine Operator					
Statewide	171	203	219	18.7	28.1
Oklahoma City SMSA	35	41	46	17.1	31.4
Tulsa SMSA	<u>1/</u>	12	15	xx	xx
Pay-Roll Clerk					
Statewide	80	88	106	10.0	32.5
Oklahoma City SMSA	20	23	30	15.0	50.0
Tulsa SMSA	<u>1/</u>	<u>1/</u>	12	xx	xx
Clerk, General Office					
Statewide	1,695	1,821	1,957	7.4	15.5
Oklahoma City SMSA	886	906	940	2.3	6.1
Tulsa SMSA	255	297	342	16.5	34.1
Programmer, Detail					
Statewide	10	15	21	50.0	110.0
Oklahoma City SMSA	<u>1/</u>	11	12	xx	xx
Accounting Clerk					
Statewide	208	236	250	13.5	20.2

EMPLOYMENT IN MEDICAL – RELATED OCCUPATIONS
JUNE 1967 AND FORECAST PERIODS
(Continued)

OCCUPATION	EMPLOYMENT			PERCENT CHANGE	
	June 1967	June 1969	June 1972	June 1967 to - June 1969 June 1972	
Oklahoma City SMSA	53	59	66	11.3	24.5
Tulsa SMSA	74	88	91	18.9	23.0
Telephone Operator (PBX Operator)					
Statewide	449	492	531	9.6	18.3
Oklahoma City SMSA	163	168	184	3.1	12.9
Tulsa SMSA	101	126	138	24.8	36.6
Cook (and Institutional Cook)					
Statewide	2,516	2,700	2,802	7.3	11.4
Oklahoma City SMSA	316	337	378	6.6	19.6
Tulsa SMSA	198	256	267	29.3	34.8
Housekeeper					
Statewide	1,769	1,866	2,002	5.5	13.2
Oklahoma City SMSA	390	424	468	8.7	20.0
Tulsa SMSA	215	223	242	3.7	12.6
Grounds Keeper					
Statewide	295	306	320	3.7	8.5
Oklahoma City SMSA	69	72	78	4.3	13.0
Tulsa SMSA	50	51	53	2.0	6.0
Baker					
Statewide	76	86	94	13.2	23.7
Oklahoma City SMSA	44	48	54	9.1	22.7
Tulsa SMSA	1/	11	11	xx	xx
Maintenance Man, Building					
Statewide	737	796	851	8.0	15.5
Oklahoma City SMSA	170	179	203	5.3	19.4
Tulsa SMSA	79	93	100	17.7	26.6
Stationary Engineer					
Statewide	203	207	232	2.0	14.3
Oklahoma City SMSA	72	75	96	4.2	33.3
Tulsa SMSA	45	46	48	2.2	6.7

1/ Less than 10 jobholders.